Vierra Unit Restoration: Levee Planting
San Joaquin River National Wildlife Refuge

River Partners

SCOPE OF WORK

Background

This Scope of Work describes the tasks related to restoring wildlife habitat on approximately 11,000 linear feet on the west side of abandoned Army Corps of Engineers (Corps) levees on the Vierra Unit of the San Joaquin River National Wildlife Refuge (Refuge), owned by the U.S. Fish and Wildlife Service (USFWS). The Refuge is located in Stanislaus County, approximately 10 miles west of Modesto, California. The goal of this project is to restore dense, shrubby habitat for the endangered riparian brush rabbit and provide suitable long, linear refugia during times of flooding. The Endangered Species Recovery Program is reintroducing this endangered species on the Refuge. Approximately 1,500 acres of riparian brush rabbit habitat was recently burned on the Refuge, making habitat restoration even more critical to this species.

This project compliments a large riparian and wetland habitat restoration project, funded by the Department of Water Resources Flood Protection Corridor Program, starting Fall 2005 on the Vierra Unit. The goals of the Vierra Flood Protection and Environmental Enhancement Project include restoring 311 acres of riparian vegetation and creating 200 acres of wetland habitat for a variety of threatened and endangered species, reducing risks of fish entrapment, and enhancing the flood corridor.

The Vierra Flood Protection and Environmental Enhancement Project is an integral, but separate part of an overall project that will restore flood flows and natural fluvial processes across the floodplain and prevent future flood damage. The Vierra Unit is located within a Corps nonstructural flood protection demonstration project, which calls for abandoning/breaching Corps flood control levees damaged by the 1997 floods, purchasing flowage easements, and constructing a ring levee around residences owned by the USFWS and an old dairy complex that houses the Refuge field headquarters. An environmental assessment (for National Environmental Policy Act) completed by the Corps in 1997 found the nonstructural alternative project posed no significant adverse impacts to soils, air quality, water quality, socioeconomic conditions, land use, recreation, river hydrology, or cultural resources.

Scope of Work

Task 1: **Planning/Design**

Site Assessment Riparian Habitat Restoration: River Partners will conduct a site assessment to evaluate site factors that will determine the species composition of the native riparian vegetation to be restored.

Task 2: **Irrigation**

Irrigation Installation: River Partners will install a drip irrigation system to irrigate planted vegetation for three years.
Irrigation Operation/Repair: River Partners will operate and maintain the drip irrigation system for three years.

Task 3: **Ground Preparation**

River Partners will prepare levee sides prior to planting, including removing thatch and weed control.

Task 4: **Planting**

Plant Propagation: Local native plant material will be collected, propagated, and incorporated into the levee planting. River Partners will contract with plant nurseries to grow container-stock for the revegetation. Approximately 6,000 woody plants will be supplied by River Partners and contracted nurseries.
Field Planting: River Partners will survey and layout the field, design plant communities, and plant and provide every tree with a plant protector. River Partners will replant trees and shrubs as required to reach a 650 plants per acre density performance goal at the end of three years.
Understory: River Partners will plant a native herbaceous understory throughout the planting area.

Task 5: **Maintenance**

This task includes routine field maintenance operations such as spraying and hoeing for weed control for three years to optimize growing conditions for young riparian plants.

Task 6: **Monitoring and Reporting**

Field managers and biology staff will regularly monitor field and plant conditions to guide adaptive management decisions. At the end of the first growing season, River Partners will complete a field census to monitor survival and density of each species. At the end of the second and third growing seasons, River Partners will monitor subsamples of the project area for survival and density. This task also includes a Final Project Report, which describes project activities, monitoring results, and site photos.

Task 7: **Project Management**

River Partners shall be responsible for managing and administering the project. This includes contract management, accounting, budget management, and coordination with partners, subcontractors, and stakeholders.

Budget for the Vierra Unit Restoration—Levee Planting project, Stanislaus County, California.

	Task	Cost
1	Planning/Design	$2,396
2	Irrigation	$43,620
3	Ground Preparation	$2,762
4	Planting	$62,250
5	Maintenance	$57,433
6	Monitoring/Reporting	$22,144
7	Project Management	$13,397
	Total	$204,000

Proposed implementation timeline for the Vierra Unit Restoration—Levee Planting project, Stanislaus County, California.

Task	2005		2006				2007 & 2008		
	Fall	Winter	Spring	Summer	Fall	Winter	Spring	Summer	Fall
Planning/Design									
Irrigation									
Ground Preparation									
Planting									
Maintenance									
Monitoring/Reporting									
Project Management									